

Studies on Neotropical Veliidae (Hemiptera)
VII. Descriptions of four new species of *Paravelia* BREDDIN

by

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Abstract

Four new species of *Paravelia* are described: *P. stenoptera* and *P. spinifera* from Surinam; *P. manausana* from Brazil; *P. bullialata* from Surinam, Brazil and British Guiana (now Guyana). *P. stenoptera* n. sp. is the first *Paravelia* species known to possess a stridulatory mechanism, consisting of a plectrum on the trochanter and a strigil on the abdomen. *Paravelia virtutis* DRAKE & HARRIS 1935 is added to the checklist of *Paravelia* species previously published.

Keywords: *Paravelia*, Neotropical, new species.

In an earlier paper of this series one of us (JTP) showed that the New World Veliinae mostly belong in the genus *Paravelia* and published a checklist of species (POLHEMUS 1976) that due to a lapsus did not include *Paravelia virtutis* DRAKE & HARRIS 1935 from Panama. Species previously held in this genus in the subgenus *Stridulivelia* HUNGERFORD were removed as the latter was elevated to generic rank in the same paper. In another work now in preparation we will further divide *Paravelia* into several genera, however we now recognize a number of new species that fall into *Paravelia* sensu strictu and four of these are described below.

We are indebted to the following individuals and institutions for the opportunity to study specimens; abbreviations for the various collections are given in parentheses and used in the text: Dr. Nico NIESER, Zoology Laboratory, Rijksuniversiteit Utrecht, specimens to be placed in the Zoologisch Museum, Utrecht (UM); Dr. H. H. WEBER, Kiel, including specimens collected by members of the Max-Planck-Institute at Plön (WC), type-specimens collected by MPI members in Brazil to be placed in the Instituto Nacional de Pesquisas da Amazônia (Entomology Collections), Manaus/AM, Brazil; Dr. Peter ASHLOCK, University of Kansas, Lawrence (KU); J. T. POLHEMUS collection (JTP).

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Paravelia stenoptera n. sp.

Description

Macropterous male: Elongate, broadest across humeral angles of pronotum. Length 3.54 mm; maximum width 1.40 mm.

Ground color orange brown, with scattered white and pruinose patches. Head orange brown, eyes silver; distinct medial groove on frons and vertex; frons set with stout setae and scattered tiny black conical setae, along with usual three pairs of facial trichobothria. Antennae brown, segments I and IV yellowish; segments I - IV thickly clothed with short hairs; segments III and IV with scattered longer hairs, length 2 - 3 times the width of the segments; segment I stoutest; segments III and IV slenderest; antennal proportions as follows: 35; 25; 28; 35.

Pronotum orange brown, humeral angles prominent, anterior and posterior lobes separated by a distinct furrow set with a few coarse pits; two (1 + 1) elongate longitudinal triangular pruinose patches present on anterior lobe near lateral margins, two (2 + 2) small black conical setae present just inward of each patch; two (1 + 1) very small pruinose patches present near pronotal margins just caudad of transverse furrow; distinct longitudinal median carina present, surface to either side coarsely rugose, set with tiny reddish pits and fine erect setae. Pleural region sparsely set with fine setae.

Abdomen orange brown, thickly covered with fine hairs; connexiva only slightly raised, margins weakly sinuate, infuscated; connexival segments I and II (first two visible) with small black conical setae along margins. Wings brachypterous, brownish black, reaching only to anterior margin of tergite 7, exposing connexiva dorsally; triangular white areas present basally (1 + 1); small oval white spot present medially near tip; veins lighter brown.

Ventral surface orange brown; rostrum yellow with brown stripe running lengthwise medially, glabrous tip infuscated; sternites 3 and 4 with a transverse row of 17 tiny black pegs on each side (fig. 1a). Legs light brown, tarsi infuscated, entirely clothed with fine pubescence; each posterior trochanter with a peg field on anterior face (fig. 1b); posterior femora with conical black setae thickly scattered on posterior face; posterior margins of femora set with long setae; legs with following proportions:

	Femur	Tibia	Tarsal II	Tarsal III
Anterior	53	53	6	18
Middle	65	68	11	19
Posterior	78	81	11	20

Parameres small, triangular, bluntly pointed apically (see fig. 5b).

Macropterous female: Very similar to male in all respects, including the stridulatory mechanism, differing significantly only in the genitalic structures. Length 3.75 mm, maximum width 1.45 mm.

Material examined: Holotype, male, and allotype, female: SURINAM, Brokopondo, National Park Brownsberg, SN 183, stagnant pool, X-20-69, N. NIESER (UM). Paratypes as follows: SURINAM, 2 ♂♂, 2 ♀♀, same data as types (JTP, UM); 1 ♂, 1 ♀, Wilhelmina Mtns. km. 11.2, springlet, IX-19-43, D. C. GEISKES (KU); 1 ♀, Republiek Coropina Creek, IX-19-43, D. C. GEISKES (KU).

Discussion: *Paravelia stenoptera* n. sp. is the first member of the genus known to possess a stridulatory mechanism, and the first gerromorphan reported to have the strigil on the abdomen and the plectrum on the trochanter. All stridulatory *Stridulivelia* species have the strigil on the connexival margin and the plectrum on the base of the femur. The name *stenoptera* refers to the narrow hemelytra, which are also unusually abbreviated.

Paravelia manausana n. sp.

Description

Macropterous male: Elongate, broadest across humeral angles of pronotum. Length 4.15 mm; maximum width 1.60 mm.

Ground color dark brownish black, with scattered white markings (see fig. 2). Head brownish black; frons and vertex with distinct impressed medial groove; frons and vertex with scattered stout setae in addition to the usual three pairs of facial trichobothria. Antennae brown, segments III and IV yellowish; segment I stoutest, curved; segments III and IV slenderest, segment III slightly swollen on basal fourth; proportions of segments I - IV: 33; 23; 28; 30.

Pronotum dark reddish brown, humeral angles prominent, broad; two subrectangular white patches present on anterior lobe; distinct median carina present, surface to either side coarsely rugose, set with tiny reddish pits and fine erect setae; anterior lobe set off by a transverse row of about twelve pits. Pleural region thickly set with long, fine setae; appearing pruinose at certain angles.

Abdomen brownish black, connexiva raised, covered with fine hairs. Wings long, extending to tip of abdomen, brownish black; triangular white areas (1 + 1) present basally, extending distad to level of apex of pronotum; small oval white spot present centrally caudad.

Ventral surface dark brown; rostrum light brown, glabrous. Legs dark brown; tarsi, trochanters, and tips of coxae lighter; tibiae becoming more incrassate distally, distal thickness subequal to greatest thickness of posterior femur; leg proportions as follows:

	Femur	Tibia	Tarsal II	Tarsal III
Anterior	66	65	9	11
Middle	79	81	14	16
Posterior	111	118	16	16

Parameres symmetrical, blunt, shape as in fig. 6b.

Macropterous female: Similar to male in structure and coloration; generally smaller. Length 4.10 mm; maximum width 1.30 mm.

Material examined: Holotype, male, and allotype, female: BRAZIL, Manaus, Rio Branco, A 439, XII-4-61, E. J. FITTKAU (WC). Paratypes as follows: BRAZIL, 2 ♂♂, 3 ♀♀, same data as types (WC, JTP); 2 ♂♂, 2 ♀♀, Rio Cuieiras, Cachoeira, A 76, XII-16-60, E. J. FITTKAU (WC, JTP).

Discussion: *Paravelia manausana* n. sp. is very similar to *Paravelia recens* (DRAKE & HARRIS), but differs from the latter in the following respects: coloration darker chocolate brown; apical white spot on the hemelytron elongate and reaching apex instead of round and separated from the apex; very differently shaped male parameres (see figs. 6a, b); different shape and vestiture of the first genital segment; slightly modified seventh sternite in the male. The clavate posterior tibiae of the males, a character shared by *manausana* and *recens*, have not been noticed in other *Paravelia* species.

Paravelia recens is found in bromeliads, and presumably also *P. manausana*, although no habitat data accompanied the specimens of the latter.

The name *manausana* refers to the type locality.

Paravelia spinifera n. sp.

Description

Macropterous male: Elongate, broadest across spine-like humeral angles of pronotum. Length 3.84 mm; maximum width 1.84 mm.

Ground color orange brown, with scattered pruinose areas; wings darker, marked with white. Head orange brown; frons and vertex with slight impressed medial groove; frons and vertex thickly set with moderately long dark setae, in addition to usual three pairs of facial trichobothria. Antennae brown; segment I stoutest, curved; segment II widening slightly toward apex; segments III and IV slender; all segments clothed with short golden hairs, intermixed with longer black hairs up to two times longer than the width of the segments; proportions of segments I - IV: 38; 26; 26; 31.

Pronotum orange brown, humeral angles laterally spinose (see fig. 3); distinct median carina present; anterior lobe set off by a transverse row of coarse pits, area surrounding pits vaguely pruinose; a second row of coarse pits present at extreme anterior margin bordering head, also surrounded by faint pruinosity; posterior lobe set with pits, coarsely rugose with irregular pruinose areas present along distal margin. Entire pronotum thickly covered with fine, erect setae; a patch of longer setae present medially at posterior margin.

Abdomen brown, connexiva raised, thickly covered with long, fine setae. Hemelytra long, extending to tip of abdomen, dark brown mottled with white; triangular white areas (1 + 1) present basally, extending distad to near apex of pronotum; small oval white spot present centrally caudad, flanked by subtriangular white patches (1 + 1) bordering costal margins; costa set with long, fine setae basally.

Ventral surface brown, covered with short golden hairs; rostrum yellowish, glabrous. Legs brown, coxae, trochanters, and basal halves of femora yellowish; anterior femora slightly swollen; legs covered with fine golden setae, intermixed with longer black setae. Legs with proportions as follows:

	Femur	Tibia	Tarsal II	Tarsal III
Anterior	53	53	10	17
Middle	74	72	12	22
Posterior	86	98	12	22

Parameres symmetrical, rounded, blunt, shape as in fig. 5c.

Macropterous female: Similar to male in structure and coloration, but slightly more robust. Length 3.80 mm; maximum width 1.88 mm.

Material examined: Type, male, and allotype, female: SURINAM, Zonderijssavanne, 1st. trib. of Colakreek, SN 125, IX-8-69, N. NIESER (UM). Paratypes as follows: SURINAM, 13 ♂♂, 7 ♀♀, same locality as types, SN 125, SN 141, SN 118a, (UM, JTP); 1 ♂, Zonderijssavanne, Sabakokreek, SN 33g, VII-22-69, N. NIESER (UM); 4 ♂♂, 4 ♀♀, Saramacca, Coesewijneproject, 8 km. W. of Saramacca-brug, SN 340, III-3-70, N. NIESER (UM, JTP).

Discussion: The prominent spines on the humeri immediately separate *P. spinifera* n. sp. from all other known species of *Paravelia*. *Stridulivelia alia* DRAKE also has the humeri similarly produced, but not into long spines as in *P. spinifera*; in addition, *alia* has an obvious patch of black spicules present on the base of the hind femur. The name *spinifera* means bearing a spine.

Paravelia bullialata n. sp.

Description

Macropterous male: Elongate, broadest across humeral angles of pronotum. Length 4.00 mm; maximum width 1.32 mm.

Ground color orange brown, with scattered pruinose areas. Head orange brown; frons and vertex with distinct impressed medial groove; frons and vertex finely covered with short gold hairs, in addition to the usual three pairs of facial trichobothria. Antennae brown, segment I stoutest, curved; segments III and IV slenderest; segment I thickly covered with short, dark hairs, thickly intermixed with longer dark, pilose hairs; segments II - IV covered with fine, short, golden hairs, sparsely intermixed with long dark hairs; proportions of segments I - IV: 43; 31; 29; 31.

Pronotum orange brown, humeral angles prominent, broad; distinct median carina present on anterior lobe, obscure posteriorly; anterior lobe set off by a transverse row of coarse pits, covered with fine dark hairs; posterior lobe swollen, a pair of irregular pruinose patches (1 + 1) present near anterior margin to either side of median line; surface set with fine pits and covered with short black setae; posterior margin carinate, set with long, dark setae, enclosing a crescent-shaped pruinose area set with deep pits; pleural region vaguely pruinose at bases of coxae.

Abdomen orange brown, connexiva raised, covered with fine gold setae interspersed with longer dark setae. Wings semi-brachypterous, extending only to base of genital segment, dark brown; subtriangular pallid spot present centrally, flanked by two pairs (2 + 2) of subrectangular pallid spots bordering wing margins; white band present caudad; base of wing with clear, elongate, bubble-like

structure between costal and radial veins, divided into approximately eight sections by fine transverse brown lines; costal margins and radial veins set with stout, dark setae.

Ventral surface orange brown, covered with fine pale setae intermixed with longer pilose setae; rostrum yellowish, glabrous; abdominal tergite IV appearing pruinose at certain light angles. Legs yellowish brown; middle and posterior femora biannulate with brown; tibiae darkened basally; legs covered with fine gold setae, thickly intermixed with long dark setae; leg proportions as follows:

	Femur	Tibia	Tarsal II	Tarsal III
Anterior	48	55	5	19
Middle	72	82	12	22
Posterior	91	98	12	22

Parameres symmetrical, rectangular, blunt, shape as in fig. 5a.

Macropterous female: Similar to male but somewhat shorter, connexiva more strongly reflexed; habitus as in fig. 4. Length 3.52 mm; maximum width 1.32 mm.

Material examined: Type, male, and allotype, female: SURINAM, Zonderijssavanne, 1st. trib. of Colakreek, SN 125, IX-8-69, N. NIESER (UM). Paratypes as follows: SURINAM, 194 specimens, both sexes, same locality as types, SN 125, SN 141, SN 118a, SN 128 (UM, JTP, KU, WC); 1 ♂, 1 ♀, Suriname, streamlet along rd. to Hanover, SN 61, VIII-4-69, N. NIESER (UM); 2 ♀♀, Saramacca, rd. to Saramacca-bridge, 10 km. W. of junct. with rd. to Motta, 2nd trib. of Troelkreek syst., SN 256, XI-25-69, N. NIESER (UM); 4 ♂♂, 2 ♀♀, Saramacca, Coesewijneproject, 8 km. W. of Saramacca-brug, SN 340, III-3-70, N. NIESER (UM, JTP); 1 ♀, Saramacca, Coesewijneproject, 12 km. W. of Saramacca-brug, SN 371, III-24-70, N. NIESER (UM). BRAZIL, 5 ♂♂, 1 ♀, Rio Negro, Igarape da Bica, A 185, VI-23-61, E. J. FITTKAU (WC); 1 ♀, Rio Marania, A 500, I-26-63, E. J. FITTKAU (WC). BRITISH GUIANA, 1 ♂, Supuruni Creek, VIII-14-37, S. HARRIS (KU).

Discussion: The peculiar bubble-like structures on the base of the hemelytra immediately separate *P. bullialata* n. sp. from all other known species of *Paravelia*. The name *bullialata* refers to this structure.

Resumo

São descritas quatro espécies de *Paravelia*: *P. stenoptera* e *P. spinifera* de Suriname; *P. manausana* do Brasil; *P. bullialata* de Suriname, Brasil e Guiana Inglês (agora Guyana). *P. stenoptera* n. sp. é a primeira espécie de *Paravelia* possuindo um mecanismo stridulatório, consistente de um plectrum localizado no trocânter e de um strigil localizado no abdômen. *Paravelia virtutis* DRAKE & HARRIS 1935 é acrescentado à lista de espécies de *Paravelia* publicada anteriormente.

References

- POLHEMUS, J. T. (1976): A reconsideration of the status of the genus *Paravelia* BREDDIN, with other notes and a check list of species (Veliidae: Heteroptera).- Jour. Kansas Entomol. Soc. 49 (4): 509 - 513.

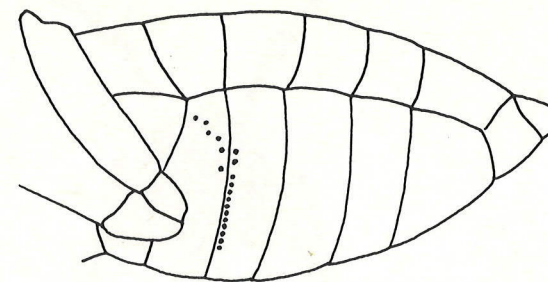
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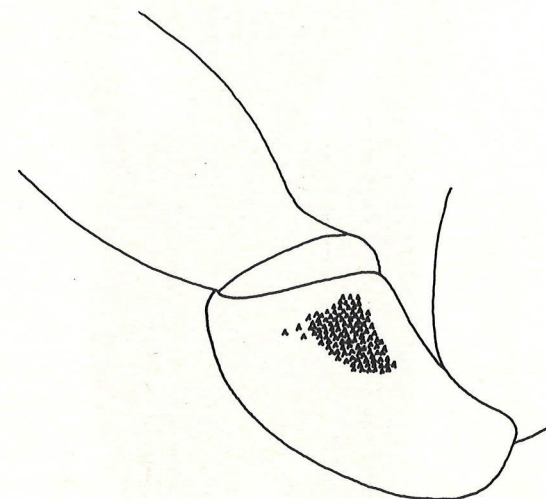
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1a



1 mm

b



1/2 mm

Fig. 1:

Paravelia stenoptera n. sp.

a. Abdomen, lateral view. b. Posterior trochanter, anterior face.

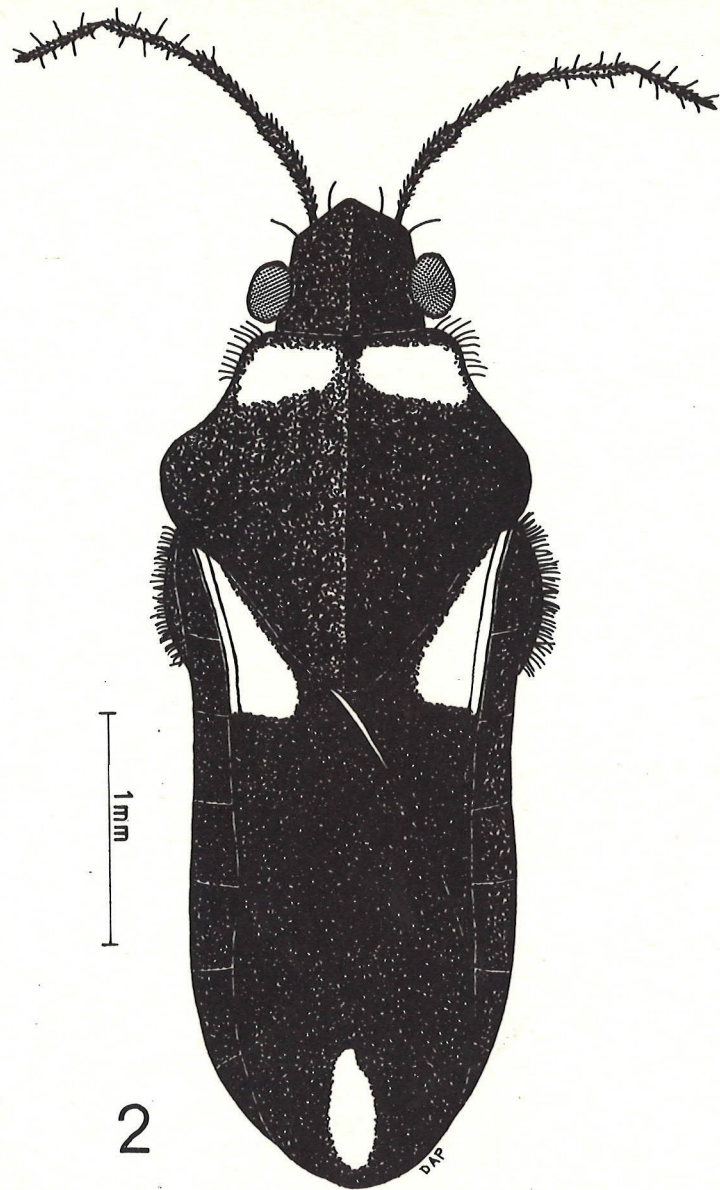


Fig. 2:
Paravelia manausana n. sp., dorsal view (legs omitted).

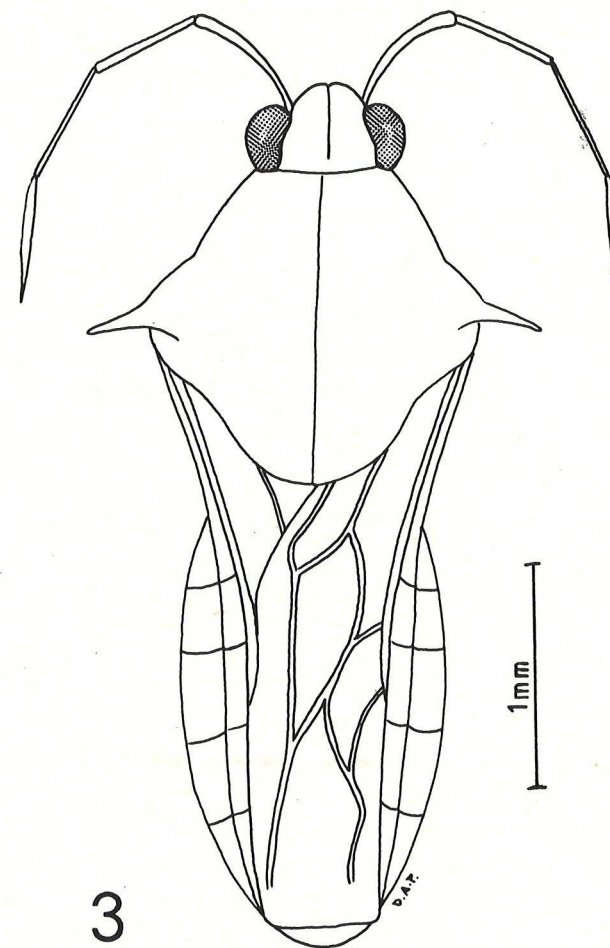


Fig. 3:
Paravelia spinifera n. sp., dorsal view (legs omitted).

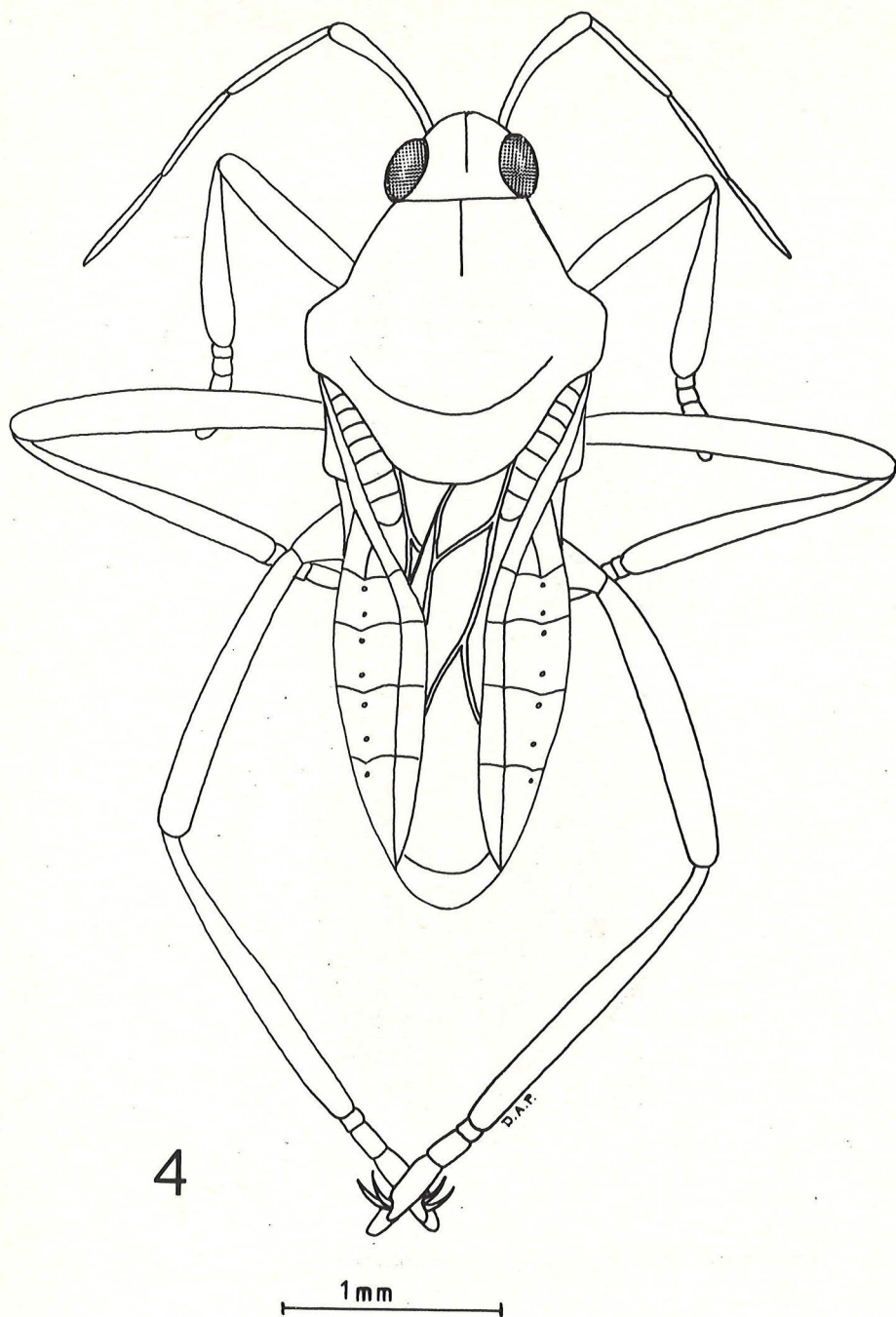


Fig. 4:
Paravelia bullialata n. sp., dorsal view.

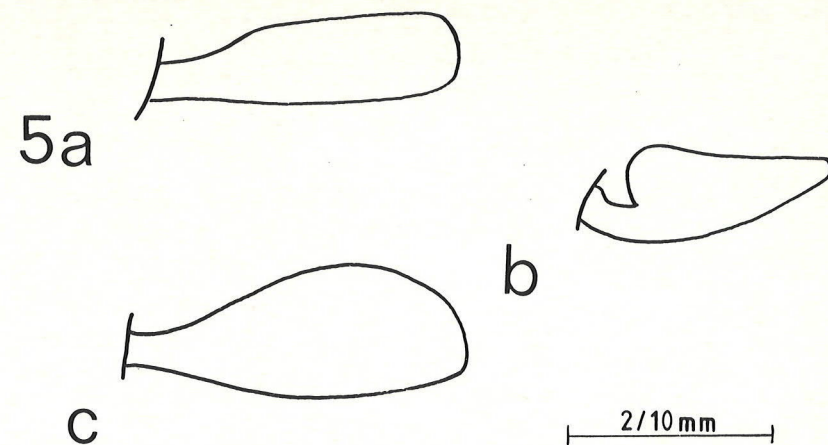


Fig. 5:
Paravelia species, male parameres.
a. *P. bullialata* n. sp.; b. *P. stenoptera* n. sp.; c. *P. spinifera* n. sp.

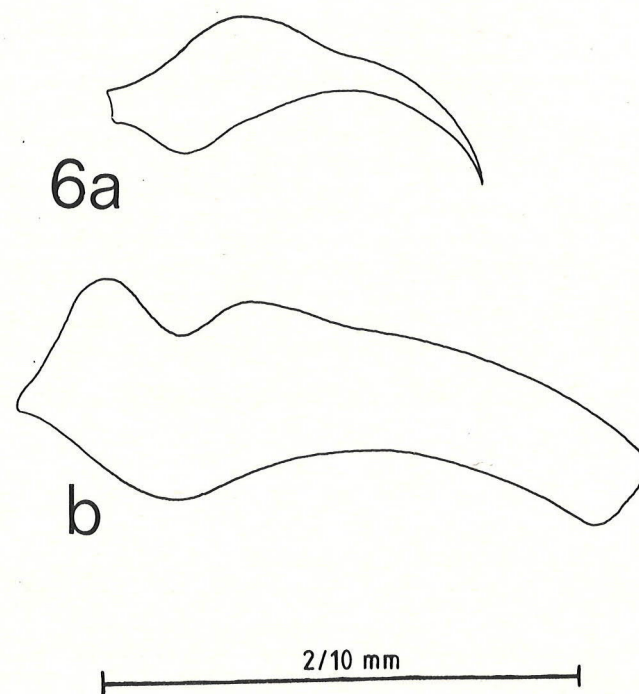


Fig. 6:
Paravelia species, male parameres.
a. *P. recens* (DRAKE & HARRIS); b. *P. manausana* n. sp.